

CORRES CONTROL
INCOMING LTR NO

70691 RF99

DUE DATE

ACTION



Department of Energy

ROCKY FLATS FIELD OFFICE
P.O. BOX 928
GOLDEN COLORADO 80402-0928

JUN 9 A 1999

99-DOE-01877

DIST	LTR	ENC
HENSUSSEN, S.J.		
HOGENBERGER, V.		
IRALLSFORD, M.O.		
YARD, R.G.		
OSGROVE, M.M.		
OK, C.M.		
RAWFORD, A.C.		
JEONG, V.J.		
ERBY, S.		
ETERLE, S.E.		
ERRERA, D.W.		
ERRERA, K.P.		
ULYON, J.C.		
ERMAN, A.L.		
YARDING, W.A.		
YAROUN, W.P.		
EDAH, T.G.		
EDWARD, R.C.		
EWIS, M.R.		
MARTINEZ, L.A.		
NORTH, K.		
PARKER, A.M.	X	X
PHILLIPS, F.J.	X	X
POLSTON, S.	X	X
RODGERS, A.D.		
SANOLIN, N.B.		
SHELTON, D.C.	X	X
SPEARS, M.		
TUOR, N.R.		
VOORHEIS, G.M.		
WARTHER, R.F.		
Wathis, B.	X	X
Stevens, J.	X	X
Wicks, L.	X	X

Dear Community Member

The draft "Rocky Flats Cleanup Agreement Standard Operating Protocol for Recycling Concrete", (herein after referred to as the "concrete recycling RSOP") will be available for a 45-day public comment period starting June 24, 1999 and ending August 9, 1999. Following the public comment period and completion of the responsiveness summary, this RSOP will be submitted for approval to the RFCA Project Coordinators for the U.S Environmental Protection Agency and the Colorado Department of Public Health and Environment.

In general, RSOPs are approved protocols that apply to a routine decommissioning or environmental restoration activity regulated under the *Rocky Flats Cleanup Agreement*. An RSOP can be used in lieu of preparing a project-specific decision document for repetitive, routing projects. Since decommissioning activities are often similar in nature, RSOPs are an effective way to document work processes.

The purpose and need for this concrete recycling RSOP have been discussed at several stakeholder meetings, and another discussion is planned for June 24, 1999, at the Front Range Community College. This RSOP will allow the recycling of concrete that would otherwise be disposed of as sanitary waste. Concrete recycling is a common industrial practice that conserves natural resources by reusing materials that would otherwise be disposed in a landfill. This RSOP proposes the use of the recycled concrete as backfill materials to facilitate recontouring of the Rocky Flats Environmental Technology Site. It includes discussion of the alternatives to reuse, environmental and monitoring requirements, characterization to ensure the material meets the free-release criteria, and management of the concrete including storage, processing and use.

FOR CONTROL	X	X
ADMIN RECORD		
ATS/TI306		

Reviewed for Addressee
Corres Control RFP

6-28-99 DG
Date By

Ref Ltr #

DOE ORDER #

1/9



ADMIN RECCRD
SW-A-003206

bcc. w/Enclosure
S. Gunderson, CDPHE
T Rehder, EPA, Region VIII
J Roberson, ADM, RFFO
D. Lowe, OOM, RFFO
H. Dalton, AMFD, RFFO
P. Golan, AMCPM, RFFO
M McCormick, FCG, RFFO
F. Gerdeman, FCG, RFFO
R. DiSalvo, OCC, RFFO
J. Rampe, EI, RFFO
Anna Martinez, CPC, RFFO
A. Parker, K-H
D. Shelton, K-H
B. Mathis, K-H
J. Stevens, K-H
L. Brooks, K-H
F Phillips, K-H

**ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE**

**RFCA Standard
Operating Protocol
for
Recycling Concrete**

June 24, 1999

DRAFT

REVIEWED FOR CLASSIFICATION
By C.A. [signature] UAC
Date 6/24/99

7. Proposed Stockpile Sites	17
7.1 Criteria for Selecting Stockpile Area	17
7.1.1 Effectiveness	17
7.1.2 Feasibility	17
7.1.3 Costs	18
7.2 Proposed Stockpile Sites within the PA	18
7.3 Proposed Stockpile Site outside the PA	18
7.4 Other Stockpile Sites	18
8. Proposed Backfill Sites	19
8.1 Criteria for Selecting Backfill Locations	19
8.1.1 Effectiveness	19
8.1.2 Feasibility	19
8.1.3 Costs	19
8.2 Proposed Backfill Site 1	19
8.3 Proposed Backfill Site 2	20
8.4 Other Suitable Sites	20
9. RSOP Administration	21
9.1 Implementation Schedule	21
9.2 Administrative Record	21
9.3 Responsiveness Summary	22

List of Figure and Tables

Figure 1 Proposed Stockpiling and Backfill Locations	vi
Table 2.1 Free Release Limits Summary	3
Table 3.1 Concrete Recycling Health and Safety Summary	7
Table 6.1 ARARs	15

EXECUTIVE SUMMARY

A Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) is an approved protocol that applies to a routine decommissioning and environmental restoration activity regulated under RFCA. An RSOP can be used in lieu of preparing a project-specific decision document for repetitive, routine activities. An RSOP must be approved only once, although it may be used on several projects. However, DOE must notify the Lead Regulatory Agency (LRA) that the RSOP will be used on a specific project. Since decommissioning activities are often similar in nature, RSOPs are an effective way to document work processes while minimizing paperwork at the project level.

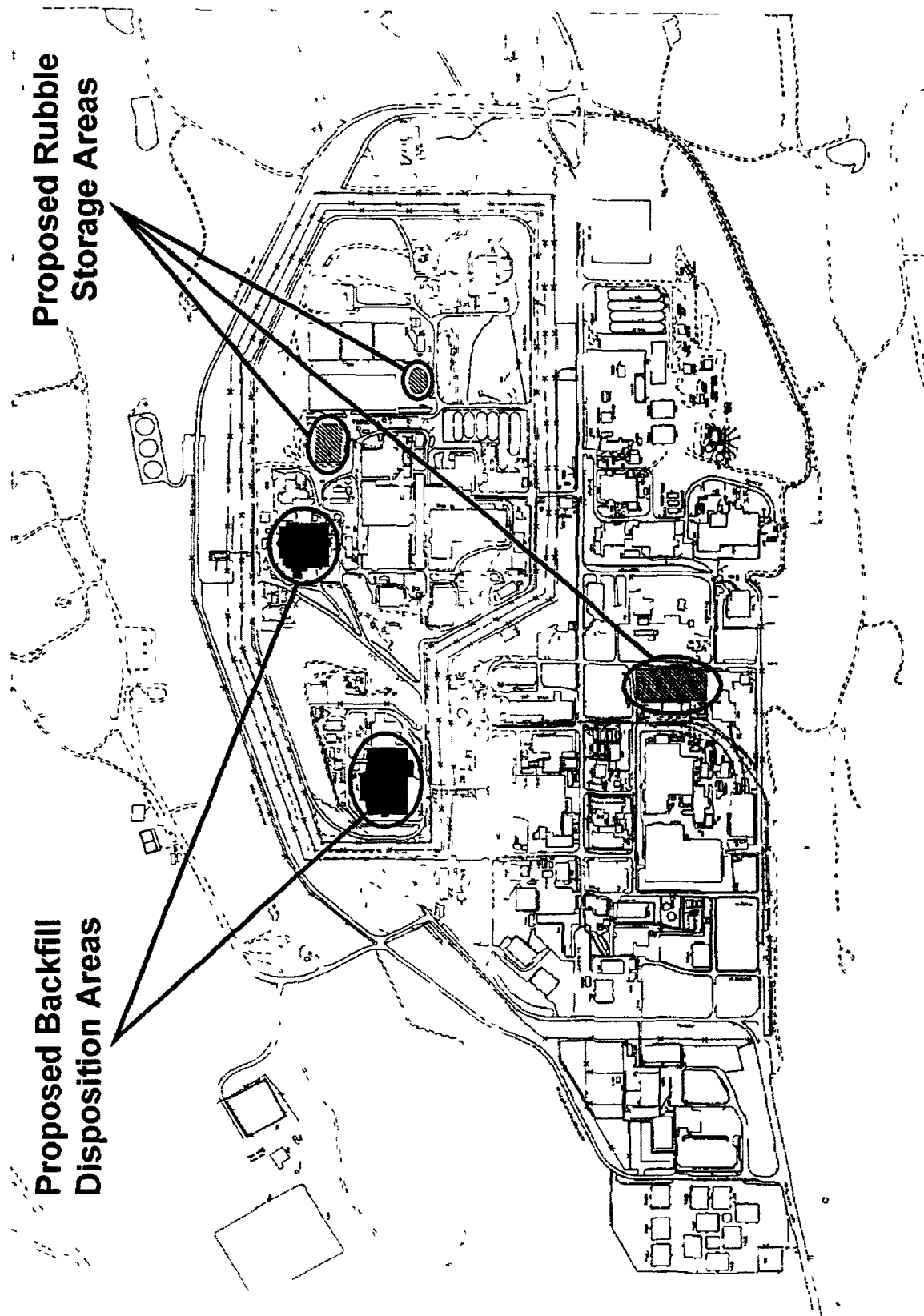
Recycling concrete is a common commercial practice. The U.S. Department of Transportation has established guidelines for the use of recycled/reclaimed concrete. The guidelines address the reuse of reclaimed concrete for granular base material, aggregate for concrete or asphalt pavement, and embankment and fill material. These guidelines indicate that 11 states accept and include the use of reclaimed concrete by conventional aggregate specifications. The predominant use of recycled concrete is as aggregate for new concrete or asphalt; however, the use of recycled concrete as backfill is a common and standard practice.

Once a building at RFETS has been designated for decommissioning, a process of characterization, dismantlement, decontamination, and disposition will take place. The demolition of a building will result in several by-products including concrete rubble. After decommissioning and environmental restoration activities are completed, backfill will be required. Concrete rubble that meets free release criteria can be used as backfill onsite, if it is properly processed.

Characterization activities will be conducted throughout decommissioning activities in accordance with *The RFETS Decontamination & Decommissioning Characterization Protocol*. Each decommissioning project will prepare characterization reports that will be used to determine if the concrete meets the free release criteria. These reports will detail the sampling methodology, frequency, and data quality objectives and will be concurred to by the LRA. The sample results will be verified and validated under a quality assurance program to determine the quality of the data set and documented in the project-specific characterization reports. In addition, independent verification of the characterization data will be conducted on the facilities where appropriate. Although characterization activities are mentioned throughout the RSOP, the scope of the RSOP does not include characterization activities. This RSOP assumes the characterization is complete and adequately documented at the project level.

Once concrete has been identified as meeting the free release criteria, it can be handled in accordance with the RSOP. The rubble will be stockpiled in the following three locations: 207C and 910/INFTN Areas within the Protected Area (PA) and adjacent to Building 444 outside of the PA. The rubble will be stockpiled until backfill is required. The stockpile areas will have dust and surface water control measures to prevent fugitive dust and impacts to surface water from the stockpiling activities.

Figure 1 Proposed Stockpiling and Backfill Locations



2. TECHNICAL APPROACH

Structural concrete is present in over 100 buildings on RFETS. The concrete is in several forms, including massive slabs associated with plutonium buildings, massive slabs, thin slabs, and cinder blocks from process buildings; and thin slabs and cinder blocks from support buildings. During decommissioning, the concrete structures will be decontaminated, as required, and demolished into rubble. Contaminated concrete residue resulting from decontamination activities and concrete not meeting free release criteria will be categorized, packaged, and shipped offsite as waste. Any remaining concrete is demolition debris that will be stockpiled and processed onsite for backfill. As defined in 6 CCR 1007-2, Regulations Pertaining to Solid Waste Disposal Sites and Facilities, *concrete, which has been in the hardened state for at least 60 days, is considered inert material.*

The approach to recycling concrete is to stockpile concrete rubble meeting the free release criteria, process the rubble for backfill, and place the backfill in voids remaining after decommissioning and restoration activities. The projected quantity of concrete for disposal or reuse is 130,000 cubic yards (100,000 cubic meters) or 229,000 metric tons. The estimated volume of backfill needed is approximately 174,000 cubic yards (135,000 cubic meters).

This RSOP describes the concrete stockpiling, transportation, processing, and placement activities. The implementation of these activities will be addressed through the Integrated Work Control Program (IWCP) in project-specific IWCP packages. The information contained in this section should be used as a guide to develop the IWCP packages for concrete recycling. The IWCP packages will be developed with the following minimum requirements: lifetime slump is less than one percent for all backfilled areas; dust is controlled during stockpiling, transportation, and backfilling; and run-off is controlled at the stockpiles.

2.1 Pre-demolition Building Characterization

A pre-demolition survey will be conducted to verify the nature and extent of remaining radiological and chemical contamination in the building. The survey will be conducted in accordance with *The RFETS Decontamination & Decommissioning Characterization Protocol and Site-Wide Pre-Demolition Survey Plan* (document in preparation) or project-specific Sampling and Analysis Plans, which are approved by the LRA. These are Site documents that establish the standards for building characterization at RFETS including reconnaissance level characterization and final release of the facility. In general, the characterization process for final release will incorporate the following steps.

- 1 The project develops characterization packages in accordance with the *Site-Wide Pre-Demolition Survey Plan*, which will be approved by the LRA, for taking final measurements and samples showing that the building meets free release criteria.
2. The DOE and LRA review the sampling results
- 3 Independent verification of the characterization data will be conducted on the facilities where appropriate. An independent verification is an independent contractor taking its own measurements and samples, and/or reviewing the DOE's results.

as onsite fill as described in Section 8 or remove it from the Site prior to final closure. The total storage area for all rubble, excluding the area needed for processing, is estimated to be approximately 320,000 square feet or 7.4 acres assuming an average stockpile height of 12 feet. The stockpile height is presented for area requirement purposes only; the height of the stockpiles may range from 12 to 30 feet. The storage areas will consist of approximately 0.1% of the acreage on RFETS.

Since rubble sources will be coming from both inside and outside of the PA and due to access restrictions in the PA, it would be advantageous to have at least two sites for storage. One site should be located within the PA, and the second should be located outside the PA. The rubble storage areas may be either located on an asphalt base or natural ground surface. The size of broken concrete slabs and rubble is anticipated to be no larger than 6 by 6 feet. Structural steel, such as T and H beams, will also be stockpiled.

The storage areas will be surrounded by a silt fence and shallow berm to retain any run off from precipitation. If the water volume exceeds the capacity of the berms, the water will be pumped into storage containers and allowed to evaporate. Since the concrete meets free release criteria, radiological and chemical contamination are not a run off concern. However, the run off water may be more alkaline due to the concrete and to prevent the water from impacting the pH of the surface water, the run off water will be controlled. The residues remaining from the evaporated water will be used as backfill or disposed.

The 207C and 910/INFWTN Areas have been identified as potential stockpile locations within the PA, and the parking area on the south side of Building 444 has been identified as a potential storage site outside the PA. In order to store the required material, the available area at each of these sites will need to be approximately 3.7 acres.

The material will be transported from the demolition area in end dump trucks or other appropriate vehicles and deposited on the ground at the stockpile area. The loads will be covered or sprayed with water or surfactant prior to transport to minimize the potential for dust. A rubber tired front-end loader or bulldozer will pile the material to a height of 12 to 30 feet. The material will be stored in this configuration until it is processed for recycling.

After stockpiling, the rubble will be treated with water or surfactant. Surfactant is an inert, nonhazardous commercial product that acts as a binder and forms a crust on the outside of the treated stockpile, which inhibits wind transport of the smaller particles. The surfactant will be applied whenever material is added or removed from the stockpile on an as-needed basis.

2.3 Backfill Processing

When backfill is required, the rubble located in the storage areas will be processed to meet the backfill requirements. Based on similar commercial operations, the final product produced by the crushing operation is a well-graded material. In a well-graded material, all particle sizes are

PCL XL error

Subsystem	IMAGE
Error	InsufficientMemory
Operator	ReadImage
Position	1112